
Safety:

Instruments:

- two jars with threaded necks and lids
 - a small, open glass
 - a spoon
 - a pipette
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Chemicals:

- tap water
 - distilled water
 - liquid soap
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Experiment:

- Pour tap water into one jar and an equal amount of distilled water into a second jar. Put one drop of liquid soap into the tap water and screw the lid onto the jar. Shake the jar. Repeat, adding soap drop-wise until the water foams upon shaking. Count the amount of drops necessary to make the water foam.
 - Repeat this procedure with the distilled water.
 - What requires more soap to foam: tap water or distilled water?
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Advice for the teacher:

Tap water requires more soap than distilled water. This means that tap water is harder, since it contains more dissolved materials.

Water seeps through underground stone formations and dissolves minerals, thus becoming "hard." These substances can be deposited as stalactites and stalagmites if the water evaporates again.

The pupils should learn that water can be "hard," meaning that it has dissolved minerals in it. These substances can be deposited inside pipes and left behind in pots and pans in the form of limestone. Soap does not foam very well in hard water due to the dissolved minerals.

Tip:

The students can try this experiment at home, too, using the tap water available there.
